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EXAMINER	
CRUTCHFIELD, CHRISTOPHER M	
ART UNIT	PAPER NUMBER
2466	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/588,501	KATO, MOTOKI	
	Examiner	Art Unit	
	CHRISTOPHER CRUTCHFIELD	2466	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *24-33,35-46 and 61-64* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *24-33, 35-46 and 61-64* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

> Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

2. **Claims 32, 40 and 45** rejected under 35 U.S.C. 112, fourth paragraph, for failing to further limit independent claims 31 and 44, respectively, from which they depend.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. **Claims 24-27, 29-31, 33, 35, 37-39, 42-44 and 61-64** are rejected under 35 U.S.C.

103(a) as being unpatentable over The ISO/IEC 13818-1 Standard ("The Standard") (Author Unknown, Generic Coding of Moving Pictures and Associated Audio: Systems, International Organization for Standardization, Workgroup 11 - Coding of Moving Pictures and Associate Audio, Pages 1-130, 13 November 1994) in view of *Bruls*, et al. (US Pre Grant Publication No. 2006/0098937 A1), *Yahata*, et al. (US Pre Grant Publication No. 2009/0010614 A1) and *Kim*, et al. (S. Kim, S. Park, Y. Kim, Fine Grain Scalability in MPEG-4 Audio, Audio Engineering Society, 111th Convention of The AES, 24 Sept 2001, Pages 1-5).

Regarding claims 24, 25, 26 and 62, *The Standard* discloses an information processing apparatus, an information processing method implemented using an information processing apparatus having at least encoding and packetizing parts and a non-transitory computer readable medium having stored thereon a program that when executed by the computer causes the computer to execute an information processing method comprising:

a. Encoding means, an encoding step of encoding, using the information processing apparatus, an encoding unit implemented by a central processing unit and configured to encode, and an encoding step for encoding an input stream so as to include a base stream (Pages xi-xix, 3-6, 10-13, 21-22,43-50). (For the corresponding means see Applicant's Specification, Paragraphs 0152-0153) (The system of The Standard discloses a system for the encoding and transport of MPEG data [Pages xi-xix]. The system operates by receiving an incoming video stream [i.e. input stream] [See Fig. 0-1, "Video data" and "Audio Data", Page xi], encoding the stream into one or more packetized elementary streams ["PES"] associated with the input stream [Pages xi-xii] [See also Page 35, Table 2-19, "ISO/IEC 12818-3 … audio steam number" - Showing

the elementary streams may be part of a layered audio architecture], packetizing the one or more PES into a transport stream ["TS"] [Fig. 0-1, "Packetizer" and "Mux", Page xii] [See also Pages xvi-xix, particularly sections 0.4, 0.7 and 0.8], transmitting the TS across a network to a decoder [Page xii], receiving the TS at the decoder, separating out the input stream by de-multiplexing the PES's associated with the input stream, decoding the input stream and providing the decoded video/audio for output [Pages xii-xiii, Particularly Fig. 0-2] [See also Pages xvi-xix, Particularly Sections 0.4, 0.7 and 0.8].)

b. Adding means, an adding step of adding, using the information processing apparatus, an adding unit, and an adding step of adding ID information that respectively distinguishes the base stream from other streams (Fig. 0-1, "Packetizer" and "Mux", Page xii, and "PID", Page 22) (For the corresponding means see Applicant's Specification, Paragraphs 0071-0082). (The Standard discloses that each packet of the PES bears the PID associated with that elementary stream).

d. A packetizing means for packetizing a packetizing step of packetizing, using the information processing apparatus the base stream, a packetizing unit configured to packetize and a packetizing step of packetizing the base stream to which the ID information is added by the adding means, into TS packets (Fig. 0-1, "Packetizer" and "Mux", Page xii, and "PID", Page 22) (For the corresponding means see Applicant's Specification, Paragraph 0079-0084). (The Standard discloses that all of the individual streams, including the streams bearing the program association table and program map table are packetized, including adding the PID to the packet, and multiplexed into a single TS [Fig. 0-1, "Packetizer" and "Mux", Page xii, Pages 22 and 43-46].)

The Standard fails to disclose the use of more than one extensible enhancement layers, each associated with a separate ID so as to create an encoding means, an encoding step of encoding, using the information processing apparatus an encoding unit implemented by a central processing unit and configured to encode and an encoding step for encoding an input stream so as to include, among a base stream and at least one extension stream having extensibility for the base stream, at least the base stream and the first extension stream, an adding means for and an adding step of adding ID information that respectively distinguishes the base stream from the at least one extension stream, which are encoded by the encoding means, to the base stream and the at least one extension stream and a packetizing means for packetizing the base stream and the at least one extension stream, a packetizing unit configured to packetize, and a packetizing step of packetizing, using the information processing apparatus, the base stream and the at least one extension stream to which the transport priority information is added by the adding step, into TS Packets. In the same field of endeavor, *Bruls* discloses the use of more then one extensible enhancement layers, each associated with a separate ID so as to create an encoding means, an encoding step of encoding, using the information processing apparatus and an encoding step for encoding an input stream so as to include, among a base stream and at least one extension stream having extensibility for the base stream, at least the base stream and the first extension stream, an adding means for and an adding step of adding ID information that respectively distinguishes the base stream from the at least one extension stream, which are encoded by the encoding means, to the base stream and the at least one extension stream and a packetizing means for packetizing the base stream and the at least one extension stream, a packetizing step of packetizing, using the information processing apparatus, the base stream and the at least one extension stream to which the

transport priority information is added by the adding step, into TS Packets (Paragraphs 0031, 0039, and 0042). (The system of *Bruls* discloses the use of a base and one or more extensible enhancement layers for encoding and transporting programs using MPEG encoding techniques [Paragraphs 0031 and 0039, See also Paragraph 0003]. *Bruls* further discloses that the system uses a separate PID to identify the base and enhancement layers [Paragraph 0042] and that the base and enhancement layers may be a part of different transport streams [Paragraph 0042].)

Therefore, since *Bruls* discloses the use of a base layer and one or more extensible enhancement layers, and The Standard discloses the use of an adding and packetizing means for adding identifier information to a stream and packetizing the stream it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the extensible layers of *Bruls* with the system of *The Standard* by implementing one or more extensible enhancement layers, each identified with a separate ID. The motive to combine is to allow the system of *The Standard* to support extensible layered video, which allows increased flexibility and reduced bandwidth requirements for video distribution (See Generally, *Bruls*, Paragraphs 0006-0014).

Assuming arguendo, that *Bruls* fails to disclose the use of more the one enhancement layers (i.e. Because *Bruls* is not in standard US format with a clearly identified background of the invention, it is unclear if Paragraph 0003 is a part of the background of the invention, therefore constituting a separate disclosure.) In the same field of endeavor, The Background of *Bruls* discloses the use of one or more enhancement layers (See Paragraph 0003).

Therefore, since the background of *Bruls* discloses the use of more then one extension layer (i.e. a first to n-the extension stream), it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple extension layers of The Background of *Bruls* into the teachings of *The Specification* as modified by *Bruls* by transmitting

more then one extension stream as a separate elementary stream with its own stream ID. The motive to combine is to allow enhanced flexibility by providing multiple extension streams so that endpoints can decode one or more of the extension streams to obtain incremental quality increases.

The Standard as modified by *Burls* fails to disclose the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets, such that the information processing apparatus and method further comprises adding transport priority information that indicates priority and respectively distinguishes the base stream from the at least one extension stream and packetizing the base stream and the at least one extension stream, to which the transport priority information is added by the adding means, into TS packets. In the same field of endeavor, *Yahata* discloses the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets, such that the information processing apparatus and method further comprises adding transport priority information that indicates priority and respectively distinguishes the base stream from the at least one extension stream and packetizing the base stream and the at least one extension stream, to which the transport priority information is added by the adding means, into TS packets (Paragraphs 0298 and 0326-0338). (The system of *Yahata* discloses a system that uses a priority bit to de-multiplex a base frame for a DVD encoding from an extension/enhancement layer frame used for the enhancement information for blu-ray encoding [Paragraphs 0326-0335]. The priority bit is used to separate the base layer and the level 1 enhancement layer [i.e. Base+Level-EXT] used for DVD transmission from the level 2 enhancement layer [i.e. Level 2-EXT] [Paragraph 0326]. *Yahata* further discloses that the system combines the base layer and the first enhancement layer in view of the "widespread use" of devices that support the base layer and the first enhancement layer [i.e. the widespread use of traditional DVD style encoders does not require

the separation of the base and the first enhancement layer, as all devices support both layers, so only the second enhancement layer, used for HD type devices is separated] [Paragraph 0298].)

Therefore, since *Yahata* suggests the use of a priority indicator to separate base and enhancement layers that are contained in elementary streams and the system of *The Standard* as modified by *Burlsi* suggests that all base and enhancement layers may be transmitted in separate elementary streams which are created by adding appropriate identifier information to streams of data and packetizing the data, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the layered priority separation of *Yahata* with the separate base and enhancement layers of *The Standard* as modified by *Burlsi* to form a system that transports and de-multiplexes a base layer and one or more transport layers based on a priority field. (i.e. The system of *Yahata* discloses the use of the priority indicator of a transport stream to separate a base layer and a first level enhancement layer from a second level enhancement layer [*Yahata*, Paragraph 0326]. The reason that the base layer [i.e. Base] and the first level enhancement layer [i.e. Level1-EXT] are allowed to remain together in one transport stream is that the system of *Yahata* is directed towards DVD decoders, which almost universally support the combination of the base and first extension layer [*Yahata*, Paragraph 0298]. However, in a system, such as that taught by *The Standard* as modified by *Burlsi,* the types of systems supported are more diverse, and unlike a traditional DVD distribution system, the base and first enhancement layer may be separately transmitted in two different transport streams [*Burlsi,* Paragraph 0042] and be decoded by devices that support only the base stream or the base and one or more enhancement streams [See For Example, *Burlsi*, Paragraph 0044-Showing both SD and HD TVs]. Therefore, a person of ordinary skill in the art at the time of the invention would have recognized that the teachings of *Yahata* could be applied to the separate

base and enhancement layer transport streams of *The Standard* as modified by *Burlsi* by using a priority indicator to separate one or more of the base and enhancement layers all using the same PID.) The motive to combine is provided by *Yahata* and is to allow the convenient de-multiplexing of the desired layers at diverse decoded types, each supporting the base layer and zero or more enhancement layers in accordance with the decoder capability.

In the alternative, *The Standard* as modified by *Burls* can be viewed as teaching a base system in which separated base and enhancement MPEG transport streams are transmitted to devices which decode the base layer and one or more of the enhancement layers. The system of *Yahata* can be viewed as teaching a known improvement used in MPEG decoders for de-multiplexing base and enhancement layers in which the layers desired to be separated are assigned unique priority indicators but the same PID and are de-multiplexed based on the priority indicator. Therefore, the use of a priority indicator to separate the MPEG base and enhancement layer transport streams of *The Standard* as modified by *Burls* would have been obvious to a person of ordinary skill in the art at the time of the invention, in view of its use to separate MPEG transport streams in the system of *Yahata*, and would have produced the predictable result of a system that separates one or more base and enhancement layers by using a priority indicator.

The Standard as modified by *Burls* and *Yahata* fails to disclose an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses an information processing apparatus wherein the encoding means encodes the TS

packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

Regarding claims 27, 29 and 30 *The Standard* discloses an information processing apparatus comprising, an information processing method implemented using an information processing apparatus having at least a decoding part, comprising and a non-transitory computer readable medium having stored thereon a program that when executed by the computer causes the computer to execute an information processing method comprising:

a. An input means for inputting and input step of inputting a stream including TS packets forming a base stream, each of the TS packets having transport identifier information that distinguishes the base stream from other streams (Pages xi-xix, 3-6, 10-13, 21-22,43-50) (For the corresponding means see Applicant's Specification, Paragraphs

0088-0090 and 0257). (The system of The Standard discloses a system for the encoding and transport of MPEG data [Pages xi-xix]. The system operates by receiving an incoming video stream [i.e. input stream] [See Fig. 0-1, "Video data" and "Audio Data", Page xi], encoding the stream into one or more packetized elementary streams ["PES"] associated with the input stream [Pages xi-xii], packetizing the one or more PES into a transport stream ["TS"] [Fig. 0-1, "Packetizer" and "Mux", Page xii] [See also Pages xvi-xix, particularly sections 0.4, 0.7 and 0.8], transmitting the TS across a network to a decoder [Page xii], receiving the TS at the decoder, separating out the input stream by de-multiplexing the PES's associated with the input stream, decoding the input stream and providing the decoded video/audio for output [Pages xii-xiii, Particularly Fig. 0-2] [See also Pages xvi-xix, Particularly Sections 0.4, 0.7 and 0.8].)

b. Determining means and a determining step for referring to the transport identifier information stored in the TS packets input by the input means and for determining the type of processable stream (Pages 10-17, 22 and 43-50) (For the corresponding means see Applicant's Specification, Paragraphs 0090-0092 and 0256-0257). (The system of *The Standard* further discloses that each packetized elementary stream is assigned a packet identifier ["PID"] [i.e. IDs] that is used to uniquely identify that stream in the transport stream [TS] [See Particularly Section 2.4.1, Page 10 and "PID", Page 22]. Within each TS, a program association table and program map table are periodically transmitted in a special PES packets [Pages 43-50, Particularly Section 4.3.3 on Pages 43-44]. The program association table associates a particular program with a program map table ID, and the program map table associates the PIDs of the elementary streams that make up a program with the program map table ID [Pages 43-50] and identifies the

type of processable stream [Page 63, Table 2-36].)

c. Selecting means and a selecting step for selecting, from the stream, the TS packets having the transport identifier information associated with a selected stream (Page xiii) (For the corresponding means see Applicant's Specification, Paragraphs 0090-0092 and 0256-0257). (The system of The Standard discloses a channel specific decoder, which de-multiplexes a particular channel/program [i.e. a "stream"] by determining the associated elementary streams using the program map table and extracting them from the TS [Pages xiii and Pages 48-49].)

d. Decoding means for decoding the TS packets selected by the selecting means (For the corresponding means see Applicant's Specification, Paragraphs 0091-0092 and 0256-0257) (Pages xiii and Pages 48-49 - See (c), Supra).

The Standard fails to disclose the use of more then one extensible enhancement layers, each associated with a separate ID so as to create an input means for inputting and input step of inputting a stream including TS packets forming a base stream, TS packets forming each of at least one extension stream having extensibility for the base stream, each of the TS packets having identifier information that indicates priority and respectively distinguishes the base stream from the at least one extension stream. In the same field of endeavor, *Bruls* discloses the use of more then one extensible enhancement layers, each associated with a separate ID so as to create an input means for inputting and input step of inputting a stream including TS packets forming a base stream, TS packets forming each of at least one extension stream having extensibility for the base stream, each of the TS packets having identifier information that

indicates priority and respectively distinguishes the base stream from the at least one extension stream (Paragraphs 0031, 0039, and 0042). (The system of *Bruls* discloses the use of a base and one or more extensible enhancement layers for encoding and transporting programs using MPEG encoding techniques [Paragraphs 0031 and 0039, See also Paragraph 0003]. *Bruls* further discloses that the system uses a separate PID to identify the base and enhancement layers [Paragraph 0042] and that the base and enhancement layers may be a part of different transport streams [Paragraph 0042].)

Therefore, since *Bruls* discloses the use of a base layer and one or more extensible enhancement layers, and The Standard discloses the use of an adding and packetizing means for adding identifier information to a stream and packetizing the stream it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the extensible layers of *Bruls* with the system of *The Standard* by implementing one or more extensible enhancement layers, each identified with a separate ID. The motive to combine is to allow the system of *The Standard* to support extensible layered video, which allows increased flexibility and reduced bandwidth requirements for video distribution (See Generally, *Bruls*, Paragraphs 0006-0014).

Assuming arguendo, that *Bruls* fails to disclose the use of more the one enhancement layers (i.e. Because *Bruls* is not in standard US format with a clearly identified background of the invention, it is unclear if Paragraph 0003 is a part of the background of the invention, therefore constituting a separate disclosure.) In the same field of endeavor, The Background of *Bruls* discloses the use of one or more enhancement layers (See Paragraph 0003).

Therefore, since the background of *Bruls* discloses the use of more then one extension layer (i.e. a first to n-the extension stream), it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple extension layers of The

Background of *Bruls* into the teachings of *The Specification* as modified by *Bruls* by transmitting more then one extension stream as a separate elementary stream with its own stream ID. The motive to combine is to allow enhanced flexibility by providing multiple extension streams so that endpoints can decode one or more of the extension streams to obtain incremental quality increases.

The Standard as modified by *Burls* fails to disclose the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets, such that the information processing apparatus and method further comprise an input means and step further comprising each of the TS packets having transport priority information that indicates priority and respectively distinguishes the base stream from the at least one extension stream and a selecting means and a selecting step for selecting, from the stream, the TS packets having the transport identifier information associated with the stream determined by a determining means to be processable. In the same field of endeavor, *Yahata* discloses the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets, such that the information processing apparatus and method further comprise an input means and step further comprising each of the TS packets having transport priority information that indicates priority and respectively distinguishes the base stream from the at least one extension stream and a selecting means and a selecting step for selecting, from the stream, the TS packets having the transport identifier information associated with the stream determined by a determining means to be processable (Paragraphs 0298 and 0326-0338). (The system of *Yahata* discloses a system that uses a priority bit to de-multiplex a base frame for a DVD encoding from an extension/enhancement layer frame used for the enhancement information for blu-ray encoding [Paragraphs 0326-0335]. The priority bit is used to separate the base layer and the level 1 enhancement layer [i.e. Base+Level-EXT] used for DVD transmission from the level 2

enhancement layer [i.e. Level 2-EXT] [Paragraph 0326]. *Yahata* further discloses that the system combines the base layer and the first enhancement layer in view of the "widespread use" of devices that support the base layer and the first enhancement layer [Paragraph 0298] and that each decoder may select an appropriate stream based on its capabilities [Paragraphs 0302-0310 and 0342-0352] [For example, a HD player will look at the program table [Paragraph 0303 and Fig. 38, TS_program_map] in order to determine which of the streams are of the appropriate type and will then decode both the base and the first and second enhancement layer, while a standard DVD player will decode only the base and the first enhancement layer streams [Paragraphs 0294-0302].)

Therefore, since *Yahata* suggests the use of a priority indicator to separate base and enhancement layers that are contained in elementary streams along with the selective decoding of only compatible streams and the system of *The Standard* as modified by *Burlsi* suggests that all base and enhancement layers may be transmitted in separate elementary streams and the generation of appropriate stream identifier information and subsequent packetizing of the outgoing streams, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the layered priority separation of *Yahata* with the separate base and enhancement layers of *The Standard* as modified by *Burlsi* to form a system that transports and de-multiplexes a base layer and one or more transport layers based on a priority field and the supported number of enhancement layers. (i.e. The system of *Yahata* discloses the use of the priority indicator of a transport stream to separate a base layer and a first level enhancement layer from a second level enhancement layer [*Yahata*, Paragraph 0326]. The reason that the base layer [i.e. Base] and the first level enhancement layer [i.e. Level1-EXT] are allowed to remain together in one transport stream is that the system of *Yahata* is directed towards DVD decoders, which almost universally support the combination of the base and first extension layer

[*Yahata*, Paragraph 0298]. However, in a system, such as that taught by *The Standard* as modified by *Burlsi*, the types of systems supported are more diverse, and unlike a traditional DVD distribution system, the base and first enhancement layer may be separately transmitted in two different transport streams [*Burlsi*, Paragraph 0042] and be decoded by devices that support only the base stream or the base and one or more enhancement streams [See For Example, *Burlsi*, Paragraph 0044- Showing both SD and HD TVs]. Therefore, a person of ordinary skill in the art at the time of the invention would have recognized that the teachings of *Yahata* could be applied to the separate base and enhancement layer transport streams of *The Standard* as modified by *Burlsi* by using a priority indicator to separate one or more of the base and enhancement layers all using the same PID.) The motive to combine is provided by *Yahata* and is to allow the convenient de-multiplexing of the desired layers at diverse decoded types, each supporting the base layer and zero or more enhancement layers in accordance with the decoder capability.

In the alternative, *The Standard* as modified by *Burls* can be viewed as teaching a base system in which separated base and enhancement MPEG transport streams are transmitted to devices which decode the base layer and one or more of the enhancement layers. The system of *Yahata* can be viewed as teaching a known improvement used in MPEG decoders for de-multiplexing base and enhancement layers in which the layers desired to be separated are assigned unique priority indicators but the same PID and are de-multiplexed based on the priority indicator and decoder compatibility. Therefore, the use of a priority indicator to separate the MPEG base and enhancement layer transport streams of *The Standard* as modified by *Burls* into compatible and non-compatible streams would have been obvious to a person of ordinary skill in the art at the time of the invention, in view of its use to separate MPEG transport streams into compatible and non-compatible streams in the system of *Yahata*, and would have

produced the predictable result of a system that separates one or more compatible base and enhancement layers by using a priority indicator.

The Standard as modified by *Burls* and *Yahata* fails to disclose an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

Regarding claim 31, *The Standard* discloses a non-transitory computer readable

medium having stored thereon a data structure of an entire stream to be played back by a computer, the entire stream including a base stream, wherein the entire stream includes:

a. TS packets forming the base stream, a header of each of the TS packets forming the base stream includes an ID identifying the TS packet (Pages xi-xix, 3-6, 10-13, 21-22,43-50). (The system of The Standard discloses a system for the encoding and transport of MPEG data [Pages xi-xix]. The system operates by receiving an incoming video stream [i.e. input stream] [See Fig. 0-1, "Video data" and "Audio Data", Page xi], encoding the stream into one or more packetized elementary streams ["PES"] associated with the input stream [Pages xi-xii] [See also Page 35, Table 2-19, "ISO/IEC 12818-3 ... audio steam number" - Showing the elementary streams may be part of a layered audio architecture], packetizing the one or more PES into a transport stream ["TS"] [Fig. 0-1, "Packetizer" and "Mux", Page xii] [See also Pages xvi-xix, particularly sections 0.4, 0.7 and 0.8], transmitting the TS across a network to a decoder [Page xii], receiving the TS at the decoder, separating out the input stream by de-multiplexing the PES's associated with the input stream, decoding the input stream and providing the decoded video/audio for output [Pages xii-xiii, Particularly Fig. 0-2] [See also Pages xvi-xix, Particularly Sections 0.4, 0.7 and 0.8].)

b. Wherein the TS packets each include identifier information that indicates distinguishes the base stream from other streams (Fig. 0-1, "Packetizer" and "Mux", Page xii, and "PID", Page 22). (The Standard discloses that the header of each packet of the PES bears the PID associated with that elementary stream).

The Standard fails to disclose the use of more then one extensible enhancement layers, each associated with a separate ID so as to create TS packets forming each of the first to n-th extension stream, and a header of each of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream includes an ID identifying the TS packet, and wherein the TS packets each include ID information that respectively distinguishes the base stream from the first to n-the extension streams. In the same field of endeavor, *Bruls* discloses the use of more then one extensible enhancement layers, each associated with a separate ID so as to create TS packets forming each of the first to n-th extension stream, and a header of each of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream includes an ID identifying the TS packet, and wherein the TS packets each include ID information that respectively distinguishes the base stream from the first to n-the extension streams (Paragraphs 0031, 0039, and 0042). (The system of *Bruls* discloses the use of a base and one or more extensible enhancement layers for encoding and transporting programs using MPEG encoding techniques [Paragraphs 0031 and 0039, See also Paragraph 0003]. *Bruls* further discloses that the system uses a separate PID to identify the base and enhancement layers [Paragraph 0042] and that the base and enhancement layers may be a part of different transport streams [Paragraph 0042].)

Therefore, since *Bruls* discloses the use of a base layer and one or more extensible enhancement layers, and The Standard discloses the use of an adding and packetizing means for adding identifier information to a stream and packetizing the stream it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the extensible layers of *Bruls* with the system of *The Standard* by implementing one or more extensible enhancement layers, each identified with a separate ID. The motive to combine is to allow the system of *The Standard* to support extensible layered video, which allows increased

flexibility and reduced bandwidth requirements for video distribution (See Generally, *Bruls*, Paragraphs 0006-0014).

Assuming arguendo, that *Bruls* fails to disclose the use of more the one enhancement layers (i.e. Because *Bruls* is not in standard US format with a clearly identified background of the invention, it is unclear if Paragraph 0003 is a part of the background of the invention, therefore constituting a separate disclosure.) In the same field of endeavor, The Background of *Bruls* discloses the use of one or more enhancement layers (See Paragraph 0003).

Therefore, since the background of *Bruls* discloses the use of more then one extension layer (i.e. a first to n-the extension stream), it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple extension layers of The Background of *Bruls* into the teachings of *The Specification* as modified by *Bruls* by transmitting more then one extension stream as a separate elementary stream with its own stream ID. The motive to combine is to allow enhanced flexibility by providing multiple extension streams so that endpoints can decode one or more of the extension streams to obtain incremental quality increases.

The Standard as modified by *Burls* fails to disclose the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets that are a part of the same stream with a common ID, such that the TS packets forming each of the first to n-th extension stream, and a header of each of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream includes an ID identifying the TS packet, and wherein the TS packets each include transport priority information that indicates priority and respectively distinguishes the base stream from the first to n-the extension streams. In the same field of endeavor, *Yahata* discloses the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets that are a part of the same stream with a

common ID, such that the TS packets forming each of the first to n-th extension stream, and a header of each of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream includes an ID identifying the TS packet, and wherein the TS packets each include transport priority information that indicates priority and respectively distinguishes the base stream from the first to n-the extension streams (Paragraphs 0298 and 0326-0338). (The system of *Yahata* discloses a system that uses a priority bit to de-multiplex a base frame for a DVD encoding from an extension/enhancement layer frame used for the enhancement information for blu-ray encoding [Paragraphs 0326-0335]. The priority bit is used to separate the base layer and the level 1 enhancement layer [i.e. Base+Level-EXT] used for DVD transmission from the level 2 enhancement layer [i.e. Level 2-EXT] that may share the same PID [Paragraph 0306 and 0325-0326]. *Yahata* further discloses that the system combines the base layer and the first enhancement layer in view of the "widespread use" of devices that support the base layer and the first enhancement layer [i.e. the widespread use of traditional DVD style encoders does not require the separation of the base and the first enhancement layer, as all devices support both layers, so only the second enhancement layer, used for HD type devices is separated] [Paragraph 0298].)

Therefore, since *Yahata* suggests the use of a priority indicator to separate base and enhancement layers that are contained in elementary streams along with the selective decoding of only compatible streams and the system of *The Standard* as modified by *Burlsi* suggests that all base and enhancement layers may be transmitted in separate elementary streams and the generation of appropriate stream identifier information and subsequent packetizing of the outgoing streams, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the layered priority separation of *Yahata* with the separate base and enhancement layers of *The Standard* as modified by *Burlsi* to form a system that transports and

de-multiplexes a base layer and one or more transport layers based on a priority field and the supported number of enhancement layers. (i.e. The system of *Yahata* discloses the use of the priority indicator of a transport stream to separate a base layer and a first level enhancement layer from a second level enhancement layer [*Yahata*, Paragraph 0326]. The reason that the base layer [i.e. Base] and the first level enhancement layer [i.e. Level1-EXT] are allowed to remain together in one transport stream is that the system of *Yahata* is directed towards DVD decoders, which almost universally support the combination of the base and first extension layer [*Yahata*, Paragraph 0298]. However, in a system, such as that taught by *The Standard* as modified by *Burlsi,* the types of systems supported are more diverse, and unlike a traditional DVD distribution system, the base and first enhancement layer may be separately transmitted in two different transport streams [*Burlsi*, Paragraph 0042] and be decoded by devices that support only the base stream or the base and one or more enhancement streams [See For Example, *Burlsi*, Paragraph 0044- Showing both SD and HD TVs]. Therefore, a person of ordinary skill in the art at the time of the invention would have recognized that the teachings of *Yahata* could be applied to the separate base and enhancement layer transport streams of *The Standard* as modified by *Burlsi* by using a priority indicator to separate one or more of the base and enhancement layers all using the same PID.) The motive to combine is provided by *Yahata* and is to allow the convenient de-multiplexing of the desired layers at diverse decoded types, each supporting the base layer and zero or more enhancement layers in accordance with the decoder capability.

In the alternative, *The Standard* as modified by *Burls* can be viewed as teaching a base system in which separated base and enhancement MPEG transport streams are transmitted to devices which decode the base layer and one or more of the enhancement layers. The system of *Yahata* can be viewed as teaching a known improvement used in MPEG decoders for de-

multiplexing base and enhancement layers in which the layers desired to be separated are assigned unique priority indicators but the same PID and are de-multiplexed based on the priority indicator. Therefore, the use of a priority indicator to separate the MPEG base and enhancement layer transport streams of *The Standard* as modified by *Burls* would have been obvious to a person of ordinary skill in the art at the time of the invention, in view of its use to separate MPEG transport streams in the system of *Yahata*, and would have produced the predictable result of a system that separates one or more base and enhancement layers by using a priority indicator.

The Standard as modified by *Burls* and *Yahata* fails to disclose an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have

been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

Regarding claim 32, The Standard fails to disclose a data structure wherein the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, are arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses a data structure wherein the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, are arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement

layer simply by cutting off the stream after the desired layers have been received.

Regarding claims 33, 37, 38 and 63 *The Standard* discloses an information processing apparatus comprising, an information processing method implemented using an information processing apparatus having at least encoding and packetizing parts, comprising and a non-transitory computer readable medium having stored thereon a program that when executed by the computer causes the computer to execute an information processing method comprising:

a. Encoding means for encoding, an encoding unit implemented by a central processing unit and configured to and an encoding step of encoding at least a base stream of an entire stream that may include the base stream (Pages xi-xix, 3-6, 10-13, 21-22,43-50) (For the corresponding means see Applicant's Specification, Paragraphs 0152-0153). (The system of The Standard discloses a system for the encoding and transport of MPEG data [Pages xi-xix]. The system operates by receiving an incoming video stream [i.e. input stream] [See Fig. 0-1, "Video data" and "Audio Data", Page xi], encoding the stream into one or more packetized elementary streams ["PES"] associated with the input stream [Pages xi-xii] [See also Page 35, Table 2-19, "ISO/IEC 12818-3 … audio steam number" - Showing the elementary streams may be part of a layered audio architecture], packetizing the one or more PES into a transport stream ["TS"] [Fig. 0-1, "Packetizer" and "Mux", Page xii] [See also Pages xvi-xix, particularly sections 0.4, 0.7 and 0.8], transmitting the TS across a network to a decoder [Page xii], receiving the TS at the decoder, separating out the input stream by de-multiplexing the PES's associated with the input stream, decoding the input stream and providing the decoded video/audio for output [Pages xii-xiii, Particularly Fig. 0-2] [See also Pages xvi-xix, Particularly Sections 0.4, 0.7 and 0.8].)

b. First adding means for adding, dirst adding unit configured to add and a first adding step of adding a same first ID to the stream encoded by the encoding means among the base stream, the first ID identifying the base stream (Fig. 0-1, “Packetizer” and "Mux", Page xii, and “PID”, Page 22) (For the corresponding means see Applicant’s Specification, Paragraphs 0071-0082). (The Standard discloses that the header of each packet of the PES bears the PID associated with that elementary stream).

c. A packetizing means for packetizing, a packetizing unit configured to packetize and a packetizing step of packetizing the base stream, to which the first ID information is added by the first adding means into TS packets (Fig. 0-1, “Packetizer” and "Mux", Page xii, and “PID”, Page 22) (For the corresponding means see Applicant’s Specification, Paragraph 0079-0084). (The Standard discloses that all of the individual streams, including the streams bearing the program association table and program map table are packetized, including adding the PID to the packet, and multiplexed into a single TS [Fig. 0-1, “Packetizer” and "Mux", Page xii, Pages 22 and 43-46].)

The Standard fails to disclose the use of more then one extensible enhancement layers, each associated with a separate ID such that the encoding means for encoding, an encoding unit implemented by a central processing unit and configured to and an encoding step of further comprises at least a base stream of an entire stream that may include the base stream and at least one extension stream having extensibility for the base stream and a packetizing means for and a packetizing step of packetizing the base stream and the at least one extension stream, to which the first ID are added by the first adding means into TS packets. In the same field of

endeavor, *Bruls* discloses the use of more then one extensible enhancement layers, each associated with a separate ID such that the encoding means for encoding, an encoding unit implemented by a central processing unit and configured to and an encoding step of further comprises at least a base stream of an entire stream that may include the base stream and at least one extension stream having extensibility for the base stream and a packetizing means for and a packetizing step of packetizing the base stream and the at least one extension stream, to which the first ID are added by the first adding means into TS packets (Paragraphs 0031, 0039, and 0042). (The system of *Bruls* discloses the use of a base and one or more extensible enhancement layers for encoding and transporting programs using MPEG encoding techniques [Paragraphs 0031 and 0039, See also Paragraph 0003]. *Bruls* further discloses that the system uses a separate PID to identify the base and enhancement layers [Paragraph 0042] and that the base and enhancement layers may be a part of different transport streams [Paragraph 0042].)

Therefore, since *Bruls* discloses the use of a base layer and one or more extensible enhancement layers, and The Standard discloses the use of an adding and packetizing means for adding identifier information to a stream and packetizing the stream it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the extensible layers of *Bruls* with the system of *The Standard* by implementing one or more extensible enhancement layers, each identified with a separate ID. The motive to combine is to allow the system of *The Standard* to support extensible layered video, which allows increased flexibility and reduced bandwidth requirements for video distribution (See Generally, *Bruls*, Paragraphs 0006-0014).

Assuming arguendo, that *Bruls* fails to disclose the use of more the one enhancement layers (i.e. Because *Bruls* is not in standard US format with a clearly identified background of the invention, it is unclear if Paragraph 0003 is a part of the background of the invention,

therefore constituting a separate disclosure.) In the same field of endeavor, The Background of *Bruls* discloses the use of one or more enhancement layers (See Paragraph 0003).

Therefore, since the background of *Bruls* discloses the use of more then one extension layer (i.e. a first to n-the extension stream), it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple extension layers of The Background of *Bruls* into the teachings of *The Specification* as modified by *Bruls* by transmitting more then one extension stream as a separate elementary stream with its own stream ID. The motive to combine is to allow enhanced flexibility by providing multiple extension streams so that endpoints can decode one or more of the extension streams to obtain incremental quality increases.

The Standard as modified by *Burls* fails to disclose the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets that are a part of the same stream with a common ID, such that the first adding means for and a first adding step of further comprises adding a same first ID to the stream encoded by the encoding means among the base stream and the at least one extension stream, the first ID identifying the entire stream and a second adding means for and a second adding step of adding transport priority information to, among the base stream and the at least one extension stream, the stream encoded by the encoding means, the transport priority information indicating priority and respectively distinguishing the base stream from, the at least one extension stream and a packetizing means for and a packetizing step of packetizing the base stream and the at least one extension stream, to which the first ID and the transport priority information are added by the first adding means and the second adding means, into TS packets. In the same field of endeavor, *Yahata* discloses the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets that are a part of the same stream with a common ID, such that the first adding means

for and a first adding step of further comprises adding a same first ID to the stream encoded by the encoding means among the base stream and the at least one extension stream, the first ID identifying the entire stream and a second adding means for and a second adding step of adding transport priority information to, among the base stream and the at least one extension stream, the stream encoded by the encoding means, the transport priority information indicating priority and respectively distinguishing the base stream from, the at least one extension stream and a packetizing means for and a packetizing step of packetizing the base stream and the at least one extension stream, to which the first ID and the transport priority information are added by the first adding means and the second adding means, into TS packets (Paragraphs 0298 and 0326-0338). (The system of *Yahata* discloses a system that uses a priority bit to de-multiplex a base frame for a DVD encoding from an extension/enhancement layer frame used for the enhancement information for blu-ray encoding [Paragraphs 0326-0335]. The priority bit is used to separate the base layer and the level 1 enhancement layer [i.e. Base+Level-EXT] used for DVD transmission from the level 2 enhancement layer [i.e. Level 2-EXT] that may share the same PID [Paragraph 0306 and 0325-0326]. *Yahata* further discloses that the system combines the base layer and the first enhancement layer in view of the "widespread use" of devices that support the base layer and the first enhancement layer [i.e. the widespread use of traditional DVD style encoders does not require the separation of the base and the first enhancement layer, as all devices support both layers, so only the second enhancement layer, used for HD type devices is separated] [Paragraph 0298].)

Therefore, since *Yahata* suggests the use of a priority indicator to separate base and enhancement layers that are contained in elementary streams along with the selective decoding of only compatible streams and the system of *The Standard* as modified by *Burlsi* suggests that all base and enhancement layers may be transmitted in separate elementary streams and the

generation of appropriate stream identifier information and subsequent packetizing of the outgoing streams, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the layered priority separation of *Yahata* with the separate base and enhancement layers of *The Standard* as modified by *Burlsi* to form a system that transports and de-multiplexes a base layer and one or more transport layers based on a priority field and the supported number of enhancement layers. (i.e. The system of *Yahata* discloses the use of the priority indicator of a transport stream to separate a base layer and a first level enhancement layer from a second level enhancement layer [*Yahata*, Paragraph 0326]. The reason that the base layer [i.e. Base] and the first level enhancement layer [i.e. Level1-EXT] are allowed to remain together in one transport stream is that the system of *Yahata* is directed towards DVD decoders, which almost universally support the combination of the base and first extension layer [*Yahata*, Paragraph 0298]. However, in a system, such as that taught by *The Standard* as modified by *Burlsi*, the types of systems supported are more diverse, and unlike a traditional DVD distribution system, the base and first enhancement layer may be separately transmitted in two different transport streams [*Burlsi*, Paragraph 0042] and be decoded by devices that support only the base stream or the base and one or more enhancement streams [See For Example, *Burlsi*, Paragraph 0044- Showing both SD and HD TVs]. Therefore, a person of ordinary skill in the art at the time of the invention would have recognized that the teachings of *Yahata* could be applied to the separate base and enhancement layer transport streams of *The Standard* as modified by *Burlsi* by using a priority indicator to separate one or more of the base and enhancement layers all using the same PID.) The motive to combine is provided by *Yahata* and is to allow the convenient de-multiplexing of the desired layers at diverse decoded types, each supporting the base layer and zero or more enhancement layers in accordance with the decoder capability.

In the alternative, *The Standard* as modified by *Burls* can be viewed as teaching a base system in which separated base and enhancement MPEG transport streams are transmitted to devices which decode the base layer and one or more of the enhancement layers. The system of *Yahata* can be viewed as teaching a known improvement used in MPEG decoders for de-multiplexing base and enhancement layers in which the layers desired to be separated are assigned unique priority indicators but the same PID and are de-multiplexed based on the priority indicator. Therefore, the use of a priority indicator to separate the MPEG base and enhancement layer transport streams of *The Standard* as modified by *Burls* would have been obvious to a person of ordinary skill in the art at the time of the invention, in view of its use to separate MPEG transport streams in the system of *Yahata*, and would have produced the predictable result of a system that separates one or more base and enhancement layers by using a priority indicator.

The Standard as modified by *Burls* and *Yahata* fails to disclose an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit

stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

Regarding claim 35, The Standard discloses an information processing apparatus, wherein when any of synchronization units of an extension stream corresponding to synchronization units of the base stream are present, the encoding means encodes, the extension stream and the base stream (Pages 80-81, Section 2.7.6). (The system of The Standard Discloses that if scalable coding is used, with spatial scaling, the encoder must, to the maximum extent possible, encode both layers at the same time and with the same presentation time. [i.e. if "spatial scaling" is used, the enhancement layer may not have the same frame rate as the base layer, however, whenever the presentation times of the two layers coincide, they are coded together with the same timestamps]. Therefore, the encoder will encode all streams bearing the same synchronization information.)

The Standard fails to disclose the system may utilize more then one extension stream so that the information processing apparatus further comprises an apparatus wherein when any of synchronization units of the at least one extension stream corresponding to synchronization units of the base stream are present, the encoding means encodes, among the at least one extension stream, the extension stream having the present synchronization units and the base

stream. In the same field of endeavor, *Bruls* discloses the system may utilize more then one extension stream so that the information processing apparatus further comprises an apparatus wherein when any of synchronization units of the at least one extension stream corresponding to synchronization units of the base stream are present, the encoding means encodes, among the at least one extension stream, the extension stream having the present synchronization units and the base stream (Paragraph 0003).

Therefore, since the system of *Burls* suggests the use of more then one enhancement layer and the system of The Standard discloses that only an enhancement layer that matches the presentation time (i.e. has synchronization units that correspond to the base layer) of the base layer is encoded for presentation at the same time of that base layer, it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple enhancement layers of *Burls* into the system of The Standard by causing the encoder to encode the base layer and any corresponding enhancement layers for decoding at the same presentation time. The motive to combine is to allow the use of more the one enhancement layer, allowing for fine-grained enhancement of transmitted media.

Regarding claims 39, 42, 43 and 64, *The Standard* discloses an information processing apparatus comprising, an information processing method implemented using an information processing apparatus having at least a decoding part, comprising and a non-transitory computer readable medium having stored thereon a program that when executed by the computer causes the computer to execute an information processing method comprising:

a. Input means for inputting, an input step of inputting and an input unit configured to input an entire stream that includes at least one of TS packets forming a base stream (Pages xi-xix, 3-6, 10-13, 21-22, 43-50) (For the corresponding means see Applicant's

Specification, Paragraphs 0088-0090 and 0257). (The system of The Standard discloses a system for the encoding and transport of MPEG data [Pages xi-xix]. The system operates by receiving an incoming video stream [i.e. input stream] [See Fig. 0-1, "Video data" and "Audio Data", Page xi], encoding the stream into one or more packetized elementary streams ["PES"] associated with the input stream [Pages xi-xii], packetizing the one or more PES into a transport stream ["TS"] [Fig. 0-1, "Packetizer" and "Mux", Page xii] [See also Pages xvi-xix, particularly sections 0.4, 0.7 and 0.8], transmitting the TS across a network to a decoder [Page xii], receiving the TS at the decoder, separating out the input stream by de-multiplexing the PES's associated with the input stream, decoding the input stream and providing the decoded video/audio for output [Pages xii-xiii, Particularly Fig. 0-2] [See also Pages xvi-xix, Particularly Sections 0.4, 0.7 and 0.8].)

b. Selecting means for selecting, a selecting step of selecting and a selecting unit configured to select a specific type of TS packets based on a first ID used to identify stream (Pages 10-17, 22 and 43-50) (For the corresponding means see Applicant's Specification, Paragraphs 0090-0092 and 0256-0257). (The system of *The Standard* further discloses that each packetized elementary stream is assigned a packet identifier ["PID"] [i.e. IDs] that is used to uniquely identify that stream in the transport stream [TS] [See Particularly Section 2.4.1, Page 10 and "PID", Page 22]. Within each TS, a program association table and program map table are periodically transmitted in a special PES packets [Pages 43-50, Particularly Section 4.3.3 on Pages 43-44]. The program association table associates a particular program with a program map table ID, and the program map table associates the PIDs of the elementary streams that make up a program with the program map table ID [Pages 43-50] and identifies the type of

processable stream [Page 63, Table 2-36]. The program association table is the used by the channel specific decoder, which de-multiplexes a particular channel/program [i.e. a "stream"] by determining the associated elementary streams using the program map table and extracting them from the TS for decoding [Pages xiii and Pages 48-49].)

c. Decoding means for decoding, a decoding step of decoding and a decoding unit implemented by a central processing unit and configured to decode the TS packets selected by the selecting means (Pages xiii and Pages 48-49 - See (b), Supra) (For the corresponding means see Applicant's Specification, Paragraphs 0091-0092 and 0256-0257).

The Standard fails to disclose the use of extensible enhancement layers, each associated with a separate ID so as to create Input means for inputting, an input step of inputting and an input unit configured to input an entire stream that includes at least one of TS packets forming a base stream and TS packets forming each of at least one extension stream having extensibility for the base stream and a selecting means for selecting, from the entire stream, TS packets based on an ID respectively distinguishing the base stream from the at least one extension stream, the first ID being stored in each of the TS packets input by the input means. In the same field of endeavor, *Bruls* discloses the use of extensible enhancement layers, each associated with a separate ID so as to create Input means for inputting, an input step of inputting and an input unit configured to input an entire stream that includes at least one of TS packets forming a base stream and TS packets forming each of at least one extension stream having extensibility for the base stream and a selecting means for selecting, from the entire stream, TS packets based on an ID respectively distinguishing the base stream from the

at least one extension stream, the first ID being stored in each of the TS packets input by the input means (Paragraphs 0031, 0039, and 0042). (The system of *Bruls* discloses the use of a base and one or more extensible enhancement layers for encoding and transporting programs using MPEG encoding techniques [Paragraphs 0031 and 0039, See also Paragraph 0003]. *Bruls* further discloses that the system uses a separate PID to identify the base and enhancement layers [Paragraph 0042] and that the base and enhancement layers may be a part of different transport streams [Paragraph 0042].)

Therefore, since *Bruls* discloses the use of a base layer and one or more extensible enhancement layers, and The Standard discloses the use of an adding and packetizing means for adding identifier information to a stream and packetizing the stream it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the extensible layers of *Bruls* with the system of *The Standard* by implementing one or more extensible enhancement layers, each identified with a separate ID. The motive to combine is to allow the system of *The Standard* to support extensible layered video, which allows increased flexibility and reduced bandwidth requirements for video distribution (See Generally, *Bruls*, Paragraphs 0006-0014).

Assuming arguendo, that *Bruls* fails to disclose the use of more the one enhancement layers (i.e. Because *Bruls* is not in standard US format with a clearly identified background of the invention, it is unclear if Paragraph 0003 is a part of the background of the invention, therefore constituting a separate disclosure.) In the same field of endeavor, The Background of *Bruls* discloses the use of one or more enhancement layers (See Paragraph 0003).

Therefore, since the background of *Bruls* discloses the use of more then one extension layer (i.e. a first to n-the extension stream), it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple extension layers of The

Background of *Bruls* into the teachings of *The Specification* as modified by *Bruls* by transmitting more then one extension stream as a separate elementary stream with its own stream ID. The motive to combine is to allow enhanced flexibility by providing multiple extension streams so that endpoints can decode one or more of the extension streams to obtain incremental quality increases.

The Standard as modified by *Burls* fails to disclose the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets based on the ability of a particular device to decode the base and enhancement layers, such that the information processing apparatus and method further comprise selecting means for selecting, a selecting step of selecting and a selecting unit configured to select, from the entire stream, processable TS packets based on a first ID used to identify the entire stream, transport priority information indicating priority and respectively distinguishing the base stream from the at least one extension stream, and a predetermined condition set in advance, the first ID and the transport priority information being stored in each of the TS packets input by the input means. In the same field of endeavor, *Yahata* discloses the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets based on the ability of a particular device to decode the base and enhancement layers, such that the information processing apparatus and method further comprise selecting means for selecting, a selecting step of selecting and a selecting unit configured to select, from the entire stream, processable TS packets based on a first ID used to identify the entire stream, transport priority information indicating priority and respectively distinguishing the base stream from the at least one extension stream, and a predetermined condition set in advance, the first ID and the transport priority information being stored in each of the TS packets input by the input means (Paragraphs 0298 and 0326-0338). (The system of *Yahata* discloses a system that uses a priority bit to de-multiplex a base frame

for a DVD encoding from an extension/enhancement layer frame used for the enhancement information for blu-ray encoding [Paragraphs 0326-0335]. The priority bit is used to separate the base layer and the level 1 enhancement layer [i.e. Base+Level-EXT] used for DVD transmission from the level 2 enhancement layer [i.e. Level 2-EXT] [Paragraph 0326]. *Yahata* further discloses that the system combines the base layer and the first enhancement layer in view of the "widespread use" of devices that support the base layer and the first enhancement layer [Paragraph 0298] and that each decoder may select an appropriate stream based on its capabilities [Paragraphs 0302-0310 and 0342-0352] [For example, a HD player will look at the program table [Paragraph 0303 and Fig. 38, TS_program_map] in order to determine which of the streams are of the appropriate type and will then decode both the base and the first and second enhancement layer, while a standard DVD player will decode only the base and the first enhancement layer streams [Paragraphs 0294-0302]. Finally, *Yahada* discloses that the decoders only de-multiplex layers that they are capable of decoding based on the predetermined condition of the type of decoder present in the system [Paragraphs 0288-0293].)

Therefore, since *Yahata* suggests the use of a priority indicator to separate base and enhancement layers that are contained in elementary streams along with the selective decoding of only compatible streams and the system of *The Standard* as modified by *Burlsi* suggests that all base and enhancement layers may be transmitted in separate elementary streams and the generation of appropriate stream identifier information and subsequent packetizing of the outgoing streams, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the layered priority separation of *Yahata* with the separate base and enhancement layers of *The Standard* as modified by *Burlsi* to form a system that transports and de-multiplexes a base layer and one or more transport layers based on a priority field and the supported number of enhancement layers. (i.e. The system of *Yahata* discloses the use of the

priority indicator of a transport stream to separate a base layer and a first level enhancement layer from a second level enhancement layer [*Yahata*, Paragraph 0326]. The reason that the base layer [i.e. Base] and the first level enhancement layer [i.e. Level1-EXT] are allowed to remain together in one transport stream is that the system of *Yahata* is directed towards DVD decoders, which almost universally support the combination of the base and first extension layer [*Yahata*, Paragraph 0298]. However, in a system, such as that taught by *The Standard* as modified by *Burlsi*, the types of systems supported are more diverse, and unlike a traditional DVD distribution system, the base and first enhancement layer may be separately transmitted in two different transport streams [*Burlsi*, Paragraph 0042] and be decoded by devices that support only the base stream or the base and one or more enhancement streams [See For Example, *Burlsi*, Paragraph 0044- Showing both SD and HD TVs]. Therefore, a person of ordinary skill in the art at the time of the invention would have recognized that the teachings of *Yahata* could be applied to the separate base and enhancement layer transport streams of *The Standard* as modified by *Burlsi* by using a priority indicator to separate one or more of the base and enhancement layers all using the same PID.) The motive to combine is provided by *Yahata* and is to allow the convenient de-multiplexing of the desired layers at diverse decoded types, each supporting the base layer and zero or more enhancement layers in accordance with the decoder capability.

In the alternative, *The Standard* as modified by *Burls* can be viewed as teaching a base system in which separated base and enhancement MPEG transport streams are transmitted to devices which decode the base layer and one or more of the enhancement layers. The system of *Yahata* can be viewed as teaching a known improvement used in MPEG decoders for de-multiplexing base and enhancement layers in which the layers desired to be separated are assigned unique priority indicators but the same PID and are de-multiplexed based on the

priority indicator and decoder compatibility. Therefore, the use of a priority indicator to separate the MPEG base and enhancement layer transport streams of *The Standard* as modified by *Burls* into compatible and non-compatible streams would have been obvious to a person of ordinary skill in the art at the time of the invention, in view of its use to separate MPEG transport streams into compatible and non-compatible streams in the system of *Yahata*, and would have produced the predictable result of a system that separates one or more compatible base and enhancement layers by using a priority indicator.

The Standard as modified by *Burls* and *Yahata* fails to disclose an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS

bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

Regarding claim 40, The Standard discloses the entire stream is input into the means (Pages xi-xix, 3-6, 10-13, 21-22, 43-50 - See claim 39, supra). The Standard fails to disclose the information processing apparatus wherein the entire stream is input to the input means including the TS packets arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses the information processing apparatus wherein the entire stream is input to the input means including the TS packets arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

Regarding claim 44, *The Standard* discloses a non-transitory computer readable medium having stored thereon a data structure of an entire stream to be played back by a computer, wherein the entire stream includes at least one of a base stream and at least one extension stream having extensibility for the base stream, the entire stream includes:

a. TS packets forming the base stream (Pages xi-xix, 3-6, 10-13, 21-22,43-50). (The system of The Standard discloses a system for the encoding and transport of MPEG data [Pages xi-xix]. The system operates by receiving an incoming video stream [i.e. input stream] [See Fig. 0-1, "Video data" and "Audio Data", Page xi], encoding the stream into one or more packetized elementary streams ["PES"] associated with the input stream [Pages xi-xii] [See also Page 35, Table 2-19, "ISO/IEC 12818-3 ... audio steam number" - Showing the elementary streams may be part of a layered audio architecture], packetizing the one or more PES into a transport stream ["TS"] [Fig. 0-1, "Packetizer" and "Mux", Page xii] [See also Pages xvi-xix, particularly sections 0.4, 0.7 and 0.8], transmitting the TS across a network to a decoder [Page xii], receiving the TS at the decoder, separating out the input stream by de-multiplexing the PES's associated with the input stream, decoding the input stream and providing the decoded video/audio for output [Pages xii-xiii, Particularly Fig. 0-2] [See also Pages xvi-xix, Particularly Sections 0.4, 0.7 and 0.8].)

b. TS packets forming, when any of synchronization units an extension stream corresponding to synchronization units of the base stream are present, the extension stream (Fig. 0-1, "Packetizer" and "Mux", Page xii, and "PID", Page 22 and Pages 80-81, Section 2.7.6). (The Standard discloses that all of the individual streams, including

the streams bearing the program association table and program map table are packetized, including adding the PID to the packet, and multiplexed into a single TS [Fig. 0-1, "Packetizer" and "Mux", Page xii, Pages 22 and 43-46]. The system of The Standard Discloses further discloses that the system may use a base layer and a single enhancement layer [Pages 80-81, Section 2.7.6]. During the course of encoding the base and enhancement layers if spatial scalable coding is used then the encoder must, to the maximum extent possible, encode both layers at the same time and with the same presentation time. [i.e. if "spatial scaling" is used, the enhancement layer may not have the same frame rate as the base layer, however, whenever the presentation times of the two layers coincide, they are coded together with the same timestamps]. Therefore, the encoder will encode all streams bearing the same synchronization information.)

c. A header of each of the TS packets includes an ID (Fig. 0-1, "Packetizer" and "Mux", Page xii, and "PID", Page 22). (The Standard discloses that all of the individual streams, including the streams bearing the program association table and program map table are packetized, including adding the PID to the packet, and multiplexed into a single TS [Fig. 0-1, "Packetizer" and "Mux", Page xii, Pages 22 and 43-46].)

The Standard fails to disclose the use of more then one extensible enhancement layers, each associated with a separate ID so as to create a stream further comprising TS packets forming, when any of synchronization units of the at least one extension stream corresponding to synchronization units of the base stream are present, among the at least one extension stream, the extension stream having the present synchronization units and a header of each of the TS packets forming the base stream and the TS packets forming each of the at least one

extension stream includes a first ID for respectively distinguishing the base stream from the at least one extension stream. In the same field of endeavor, *Bruls* discloses the use of more then one extensible enhancement layers, each associated with a separate ID so as to create a stream further comprising TS packets forming, when any of synchronization units of the at least one extension stream corresponding to synchronization units of the base stream are present, among the at least one extension stream, the extension stream having the present synchronization units and a header of each of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream includes a first ID for respectively distinguishing the base stream from the at least one extension stream (Paragraphs 0031, 0039, and 0042). (The system of *Bruls* discloses the use of a base and one or more extensible enhancement layers for encoding and transporting programs using MPEG encoding techniques [Paragraphs 0031 and 0039, See also Paragraph 0003]. *Bruls* further discloses that the system uses a separate PID to identify the base and enhancement layers [Paragraph 0042] and that the base and enhancement layers may be a part of different transport streams [Paragraph 0042].)

Therefore, since *Bruls* discloses the use of a base layer and one or more extensible enhancement layers, and The Standard discloses the use of an adding and packetizing means for adding identifier information to a stream and packetizing the stream it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the extensible layers of *Bruls* with the system of *The Standard* by implementing one or more extensible enhancement layers, each identified with a separate ID. The motive to combine is to allow the system of *The Standard* to support extensible layered video, which allows increased flexibility and reduced bandwidth requirements for video distribution (See Generally, *Bruls*, Paragraphs 0006-0014).

Assuming arguendo, that *Bruls* fails to disclose the use of more the one enhancement

layers (i.e. Because *Bruls* is not in standard US format with a clearly identified background of the invention, it is unclear if Paragraph 0003 is a part of the background of the invention, therefore constituting a separate disclosure.) In the same field of endeavor, The Background of *Bruls* discloses the use of one or more enhancement layers (See Paragraph 0003).

Therefore, since the background of *Bruls* discloses the use of more then one extension layer (i.e. a first to n-the extension stream), it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple extension layers of The Background of *Bruls* into the teachings of *The Specification* as modified by *Bruls* by transmitting more then one extension stream as a separate elementary stream with its own stream ID. The motive to combine is to allow enhanced flexibility by providing multiple extension streams so that endpoints can decode one or more of the extension streams to obtain incremental quality increases.

The Standard as modified by *Burls* fails to disclose the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets, such that the header of each of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream further includes a first ID used to identify the entire stream and a transport priority information indicating priority and respectively distinguishing the base stream from the first to n-th extension stream. In the same field of endeavor, *Yahata* discloses the use of a priority field, as opposed to an ID field, to de-multiplex base and enhancement layer packets, such that the information processing apparatus and method further comprises adding transport priority information that indicates priority and respectively distinguishes the base stream from the at least one extension stream and packetizing the base stream and the at least one extension stream, to which the transport priority information is added by the adding means, into TS packets (Paragraphs 0298 and 0326-0338). (The system of *Yahata* discloses a system that

uses a priority bit to de-multiplex a base frame for a DVD encoding from an extension/enhancement layer frame used for the enhancement information for blu-ray encoding [Paragraphs 0326-0335]. The priority bit is used to separate the base layer and the level 1 enhancement layer [i.e. Base+Level-EXT] used for DVD transmission from the level 2 enhancement layer that share the same PID [i.e. Level 2-EXT] [Paragraphs 0326]. *Yahata* further discloses that the system combines the base layer and the first enhancement layer in view of the "widespread use" of devices that support the base layer and the first enhancement layer [Paragraph 0298] and that each decoder may select an appropriate stream based on its capabilities [Paragraphs 0302-0310 and 0342-0352] [For example, a HD player will look at the program table [Paragraph 0303 and Fig. 38, TS_program_map] in order to determine which of the streams are of the appropriate type and will then decode both the base and the first and second enhancement layer, while a standard DVD player will decode only the base and the first enhancement layer streams [Paragraphs 0294-0302].)

Therefore, since *Yahata* suggests the use of a priority indicator to separate base and enhancement layers encoded with the same PID and the system of *The Standard* as modified by *Burlsi* suggests that all base and enhancement layers may be transmitted in separate elementary streams and the generation of appropriate stream identifier information and subsequent packetizing of the outgoing streams, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the layered priority separation of *Yahata* with the separate base and enhancement layers of *The Standard* as modified by *Burlsi* to form a system that transports and de-multiplexes a base layer and one or more transport layers based on a priority field and the supported number of enhancement layers. (i.e. The system of *Yahata* discloses the use of the priority indicator of a transport stream to separate a base layer and a first level enhancement layer from a second level enhancement layer [*Yahata*,

Paragraph 0326]. The reason that the base layer [i.e. Base] and the first level enhancement layer [i.e. Level1-EXT] are allowed to remain together in one transport stream is that the system of *Yahata* is directed towards DVD decoders, which almost universally support the combination of the base and first extension layer [*Yahata*, Paragraph 0298]. However, in a system, such as that taught by *The Standard* as modified by *Burlsi,* the types of systems supported are more diverse, and unlike a traditional DVD distribution system, the base and first enhancement layer may be separately transmitted in two different transport streams [*Burlsi*, Paragraph 0042] and be decoded by devices that support only the base stream or the base and one or more enhancement streams [See For Example, *Burlsi*, Paragraph 0044- Showing both SD and HD TVs]. Therefore, a person of ordinary skill in the art at the time of the invention would have recognized that the teachings of *Yahata* could be applied to the separate base and enhancement layer transport streams of *The Standard* as modified by *Burlsi* by using a priority indicator to separate one or more of the base and enhancement layers all using the same PID.) The motive to combine is provided by *Yahata* and is to allow the convenient de-multiplexing of the desired layers at diverse decoded types, each supporting the base layer and zero or more enhancement layers in accordance with the decoder capability.

In the alternative, *The Standard* as modified by *Burls* can be viewed as teaching a base system in which separated base and enhancement MPEG transport streams are transmitted to devices which decode the base layer and one or more of the enhancement layers. The system of *Yahata* can be viewed as teaching a known improvement used in MPEG decoders for de-multiplexing base and enhancement layers in which the layers desired to be separated are assigned unique priority indicators but the same PID and are de-multiplexed based on the priority indicator and decoder compatibility. Therefore, the use of a priority indicator to separate the MPEG base and enhancement layer transport streams of *The Standard* as modified by

Burls into compatible and non-compatible streams would have been obvious to a person of ordinary skill in the art at the time of the invention, in view of its use to separate MPEG transport streams into compatible and non-compatible streams in the system of *Yahata*, and would have produced the predictable result of a system that separates one or more compatible base and enhancement layers by using a priority indicator.

The Standard as modified by *Burls* and *Yahata* fails to disclose an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses an information processing apparatus wherein the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to

allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

Regarding claims 45, The Standard fails to disclose a non-transitory computer readable medium wherein the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, are arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream. In the same field of endeavor, *Kim* discloses a non-transitory computer readable medium wherein the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, are arranged in sequence of the TS packets to be played back at the same time and in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream (Page 3, Fig. 3). (The system of Kim discloses a system where the base and enhancement layers of a transmitted bit stream for a timeslot/frame to be played at the same time are multiplexed in layer order with the base stream first, followed by each extension stream in order of significance [Page 3, Fig. 3].)

Therefore, since *Kim* discloses the arrangement of a scalable stream of data by adding the component layers to be played back at the same time in order of significance, it would have been obvious to a person of ordinary skill in the art at the time of the invention to arrange the TS bit stream of The Standard in the order of layered significance by multiplexing the streams in the order of the significance of each layer in a particular timeframe. The motive to combine is to allow easy scalability by allowing the truncation of the bit stream at a particular enhancement layer simply by cutting off the stream after the desired layers have been received.

6. **Claim 28** is rejected under 35 U.S.C. 103(a) as being unpatentable over The ISO/IEC 13818-1 Standard ("The Standard") (Author Unknown, Generic Coding of Moving Pictures and Associated Audio: Systems, International Organization for Standardization, Workgroup 11 - Coding of Moving Pictures and Associate Audio, Pages 1-130, 13 November 1994), *Bruls*, et al. (US Pre Grant Publication No. 2006/0098937 A1), *Yahata*, et al. (US Pre Grant Publication No. 2009/0010614 A1) and *Kim*, et al. (S. Kim, S. Park, Y. Kim, Fine Grain Scalability in MPEG-4 Audio, Audio Engineering Society, 111th Convention of The AES, 24 Sept 2001, Pages 1-5) as applied to claim 27 and further in view of *Kelly*, et al. (US Pre Grant Publication No. 2002/0191625 A1).

Regarding claim 28, The Standard fails to disclose a buffering means for buffering, with respect to the transport priority information, the TS packets selected by the selecting means. In the same field of endeavor, *Kelly* discloses a buffering means for buffering, with respect to the transport priority information, the TS packets selected by the selecting means (Figs. 4 and 5 and Paragraphs 0022-0030) (For the corresponding means see Applicant's Specification, Paragraphs 0090-0092 and 0256-0257). (The system of *Kelly* discloses a system that may receive a base layer and one or more enhancement layers [Paragraph 0020]. The received streams are buffered and are then entered into the appropriate array for each of the base and enhancement layers describing the buffered packets that are to be sent to the buffer for a particular layer [Paragraph 0030]. Therefore, the packets are entered into or removed from the buffer with respect to the later/transport priority information for each layer.)

Therefore, since the system of *Kelly* suggests the use of buffering with respect to the encoding layer and the system of The Standard as modified by *Bruls* and *Yahata* suggests the use of priority information to separate base and enhancement layers, it would have been

obvious to combine the layer specific buffering of *Kelly* with the system of The Standard as modified by *Bruls* and *Yahata* by buffering TS packets based on the layer, as taught by *Kelly*, where the layer of a particular TS packet is determined from the priority information associated with that packet, as taught by The Standard as modified by *Bruls* and *Yahata* to form a system that beffers TS packets with respect to priority information. The motive to combine is provided by *Kelly* and is to allow the proper reconstruction of the timing between the base and enhancement layers, even when the layers originate from different sources or travel via different paths (Paragraphs 0008-0010).

7. **Claims 36, 41 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over The ISO/IEC 13818-1 Standard ("The Standard") (Author Unknown, Generic Coding of Moving Pictures and Associated Audio: Systems, International Organization for Standardization, Workgroup 11 - Coding of Moving Pictures and Associate Audio, Pages 1-130, 13 November 1994), *Bruls*, et al. (US Pre Grant Publication No. 2006/0098937 A1), *Yahata*, et al. (US Pre Grant Publication No. 2009/0010614 A1) and *Kim*, et al. (S. Kim, S. Park, Y. Kim, Fine Grain Scalability in MPEG-4 Audio, Audio Engineering Society, 111th Convention of The AES, 24 Sept 2001, Pages 1-5) as applied to claims 33, 39, 45, 49, 53 and 58 and further in view of Wu, et al. (US Patent No. 6,614,936).

Regarding claim 36, The Standard discloses an information processing apparatus, wherein when any of synchronization units of an extension stream corresponding to synchronization units of the base stream are present, the encoding means encodes, the extension stream and the base stream (Pages 80-81, Section 2.7.6). (The system of The Standard Discloses that if scalable coding is used, with spatial scaling, the encoder must, to the

maximum extent possible, encode both layers at the same time and with the same presentation time. [i.e. if "spatial scaling" is used, the enhancement layer may not have the same frame rate as the base layer, however, whenever the presentation times of the two layers coincide, they are coded together with the same timestamps]. Therefore, the encoder will encode all streams bearing the same synchronization information.)

The Standard fails to disclose the system may utilize more then one extension stream so that the information processing apparatus further comprises an apparatus wherein when any of synchronization units of the at least one extension stream corresponding to synchronization units of the base stream are present, the encoding means encodes, among the at least one extension stream, the extension stream having the present synchronization units and the base stream. In the same field of endeavor, *Bruls* discloses the system may utilize more then one extension stream so that the information processing apparatus further comprises an apparatus wherein when any of synchronization units of the at least one extension stream corresponding to synchronization units of the base stream are present, the encoding means encodes, among the at least one extension stream, the extension stream having the present synchronization units and the base stream (Paragraph 0003).

Therefore, since the system of *Burls* suggests the use of more then one enhancement layer and the system of The Standard discloses that only an enhancement layer that matches the presentation time (i.e. has synchronization units that correspond to the base layer) of the base layer is encoded for presentation at the same time of that base layer, it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple enhancement layers of *Burls* into the system of The Standard by causing the encoder to encode the base layer and any corresponding enhancement layers for decoding at the same presentation time. The motive to combine is to allow the use of more the one enhancement

layer, allowing for fine-grained enhancement of transmitted media.

The Standard as modified by *Burls* fails to disclose encoding the entire stream using a variable bit rate. In the same field of endeavor, *Wu* discloses encoding the entire stream using a variable bit rate (Column 2, Lines 10-49). (The system of *Wu* discloses a coder that uses a variable number of fine grain enhancement layers based on the available network bandwidth to encode and transmit data to a remote receiver [Column 1, Line 50 to Column 2, Line 49]. The output of the coder is in the form of a base layer and a variable number of enhancement layers [Column 1, Line 50 to Column 2, Line 49].)

Therefore, since *Wu* discloses coding a variable number of enhancement layers and the system of The Standard as modified by *Burls* discloses an encoder that receives the output of a coder and forms a base and one or more enhancement layers based on the correspondence of the base and enhancement layer synchronization units, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the variable layers of *Wu* with the encoder of The Standard as modified by *Burls* by having the coder of *Wu* transmit a variable number of enhancement layers to the encoder of The Standard as modified by *Burls*, which could then encode the present layers for transmission in a TS. The motive to combine is provided by *Wu* and is to allow for a variable number of enhancement layers in accordance with the available bandwidth of the channel, thereby allowing maximum transmission quality for a given channel (See Paragraph 0013).

Regarding claim 41, The Standard discloses an information processing apparatus wherein the entire stream input to the input means at least includes an encoded base stream, and further includes an extension stream which correspond to synchronization units of the base stream (Pages 80-81, Section 2.7.6). (The system of The Standard Discloses that if scalable coding is used, with spatial scaling, the encoder must, to the maximum extent possible, encode

both layers at the same time and with the same presentation time. [i.e. if "spatial scaling" is used, the enhancement layer may not have the same frame rate as the base layer, however, whenever the presentation times of the two layers coincide, they are coded together with the same timestamps]. Therefore, the encoder will encode all streams bearing the same synchronization information and transmit the result on the the input of the decoder.)

The Standard fails to disclose the system may utilize more then one extension stream so that the information processing apparatus further comprises an apparatus wherein the entire stream input to the input means at least includes an encoded base stream, and further includes the at least one extension stream which correspond to synchronization units of the base stream. In the same field of endeavor, *Bruls* discloses the system may utilize more then one extension stream so that the information processing apparatus further comprises an apparatus wherein the entire stream input to the input means at least includes an encoded base stream, and further includes the at least one extension stream which correspond to synchronization units of the base stream (Paragraph 0003).

Therefore, since the system of *Burls* suggests the use of more then one enhancement layer and the system of The Standard discloses that only an enhancement layer that matches the presentation time (i.e. has synchronization units that correspond to the base layer) of the base layer is encoded for presentation at the same time of that base layer, it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the multiple enhancement layers of *Burls* into the system of The Standard by causing the encoder to encode the base layer and any corresponding enhancement layers for decoding at the same presentation time and to transmit the result on to the input of the decoder for decoding. The motive to combine is to allow the use of more the one enhancement layer, allowing for fine-grained enhancement of transmitted media.

The Standard as modified by *Burls* fails to disclose encoding the entire stream using a variable bit rate. In the same field of endeavor, *Wu* discloses encoding the entire stream using a variable bit rate (Column 2, Lines 10-49). (The system of *Wu* discloses a coder that uses a variable number of fine grain enhancement layers based on the available network bandwidth to encode and transmit data to a remote receiver [Column 1, Line 50 to Column 2, Line 49]. The output of the coder is in the form of a base layer and a variable number of enhancement layers [Column 1, Line 50 to Column 2, Line 49].)

Therefore, since *Wu* discloses coding a variable number of enhancement layers and the system of The Standard as modified by *Burls* discloses an encoder that receives the output of a coder and forms a base and one or more enhancement layers based on the correspondence of the base and enhancement layer synchronization units, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the variable layers of *Wu* with the encoder of The Standard as modified by *Burls* by having the coder of *Wu* transmit a variable number of enhancement layers to the encoder of The Standard as modified by *Burls*, which could then encode the present layers for transmission in a TS. The motive to combine is provided by *Wu* and is to allow for a variable number of enhancement layers in accordance with the available bandwidth of the channel, thereby allowing maximum transmission quality for a given channel (See Paragraph 0013).

Regarding claim 46, The Standard fails to disclose the entire stream at least includes the base stream, and further includes the TS packets forming the at least one extension stream corresponding to the synchronization units of the base stream, the number of the TS packets being variable. In the same field of endeavor, *Wu* discloses the entire stream at least includes the base stream, and further includes the TS packets forming the at least one extension stream corresponding to the synchronization units of the base stream, the number of the TS packets

being variable (Column 2, Lines 10-49). (The system of *Wu* discloses a coder that uses a variable number of fine grain enhancement layers based on the available network bandwidth to encode and transmit data to a remote receiver [Column 1, Line 50 to Column 2, Line 49]. The output of the coder is in the form of a base layer and a variable number of enhancement layers [Column 1, Line 50 to Column 2, Line 49].)

Therefore, since *Wu* discloses coding a variable number of enhancement layers and the system of The Standard as modified by *Burls* discloses an encoder that receives the output of a coder and forms a base and one or more enhancement layer TS packets based on the correspondence of the base and enhancement layer synchronization units, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the variable layers of *Wu* with the encoder of The Standard as modified by *Burls* by having the coder of *Wu* transmit a variable number of enhancement layers and corresponding enhancement layer to the encoder of The Standard as modified by *Burls*, which could then encode the present layers for transmission in corresponding TS packets for each layer. The motive to combine is provided by *Wu* and is to allow for a variable number of enhancement layers in accordance with the available bandwidth of the channel, thereby allowing maximum transmission quality for a given channel (See Paragraph 0013).

Response to Arguments

8. Applicant's arguments filed 20 August 2011 have been fully considered but they are not persuasive.

Regarding claims 24-33, 35-46 and 61-64, Applicant's Arguments that The Standard as modified by *Burls*, *Yahata and Kim* fails to disclose "the encoding means encodes the TS packets forming the base stream and the TS packets forming each of the at least one extension stream, which are included in the entire stream, so that the TS packets to be played back at the same time are arranged in sequence in the order of the TS packets forming the base stream and the TS packets forming each of the at least one extension stream" have been considered and are not persuasive (Applicant's Arguments and Remarks, Pages 19-22).

The Applicant argues that the system of *Kim* fails to disclose that TS packets to be played back at the same time are arranged in the sequence order of the base and enhancement layers, as the system of *Kim* as it uses Bit Sliced Arithmetic Encoding and breaks up the values to be encoded in the base and enhancement layers by bit significance and then encodes the sets of bits, from most to least significant in the base and enhancement layers, respectively (Applicant's Arguments and Remarks, Page 22, citing *Kim*, page 3, first paragraph). The Examiner does not see how this fails to teach that the formed base and enhancement layers are not to be played back at the same time, as this is directed to sorting and then breaking up, based on significance, each of the frequency components of the frequency domain transform of a time domain audio block, thereby necessitating that the base and enhancement layers all relate to audio that is to be played back at the same time (see *Kim*, pages 3-4). Therefore, Applicant's Arguments have been considered and are not persuasive.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER CRUTCHFIELD whose telephone number is (571)270-3989. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Ryman can be reached on (571) 272-3152. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Crutchfield/
Examiner, Art Unit 2466
11/23/2011

/Derrick W Ferris/

Supervisory Patent Examiner, Art Unit 2463